

PROVISION OF PUBLIC PASSENGER TRANSPORT SERVICES
WITHIN THE GEORGE MUNICIPALITY AREA AND BETWEEN GEORGE AND KNYSNA,
OUDTSHOORN AND MOSSELBAY

CONTRACT NO.

(Negotiated Contract in terms of section 41 of the
National Land Transport Act of 2009 (The Act))

ANNEXURE A: TECHNICAL SPECIFICATIONS

to be read in conjunction with

ANNEXURE B: ROUTES AND TIMETABLES

GEORGE INTEGRATED PUBLIC TRANSPORT NETWORK

AUGUST 2011

**George Integrated Public Transport Network
Annexure A - Specifications**

TABLE OF CONTENTS

Table of Contents.....	i
List of Figures	iii
List of Tables.....	iii
1 Legal Matters	1
2 Bus Specifications	1
2.1 Summary of Required Bus Fleet	1
2.2 General.....	1
2.2.1 Vehicle Acquisition	3
2.2.2 Terrain and operating environment	3
2.2.3 Vehicle Approval by Contracting Authority	3
2.3 Bus Layout.....	3
2.3.1 Passenger Doors.....	3
2.3.2 Passenger Seating and Related.....	4
2.4 Bus Body	8
2.4.1 Structure.....	8
2.4.2 Windows.....	8
2.4.3 Exterior panels, roof gutter, and bumpers	10
2.4.4 Wing mirrors	10
2.4.5 External access points	11
2.5 Bus interior	11
2.5.1 Interior decor	11
2.5.2 Driver's compartment	12
2.5.3 Floor	13
2.5.4 Internal partition panels.....	13
2.5.5 Fire and safety equipment.....	14
2.5.6 Air-conditioning.....	14
2.5.7 Interior insulation	14
2.6 Bus power plant and transmission.....	14
2.6.1 Engine	14
2.6.2 Exhaust system	16
2.6.3 Cooling system	16
2.6.4 Fuel system	16
2.6.5 Environmental and safety standards	17
2.6.6 Transmission	18
2.6.7 Drive shaft	18
2.6.8 Suspension system	18
2.6.9 Steering	18
2.6.10 Brakes	19
2.6.11 Tyres and wheels	19
2.7 Electrical	20
2.7.1 Internal lighting	20
2.7.2 Exterior lighting.....	20
2.7.3 Battery and battery compartment	21
2.7.4 Wiring and cabling.....	21
2.7.5 Power Supply	21
2.7.6 Third Party Equipment Cabling	22
2.8 Signage and Communication	22
2.8.1 Duty Number Board.....	22
2.8.2 Variable messaging displays.....	22

George Integrated Public Transport Network Annexure A - Specifications

2.8.3	Audio system	23
2.8.4	Stop-request system	23
2.8.5	Driver panic alarm	23
2.8.6	Description of components to be fitted and installed	23
2.9	Maintenance and Training	24
2.9.1	Documentation	24
2.9.2	Tools, software, and diagnostic equipment	24
2.10	Disabled-passenger vehicles.....	25
2.11	Vehicle Branding and Livery	25
2.12	Vehicle Monitoring	25
2.12.1	Vehicle performance monitoring.....	25
3	Staff Matters	26
3.1	General Staff Requirements	27
3.2	Education and Training.....	27
3.3	Staff Uniforms	28
4	Services	28
4.1	Required Services	28
4.2	Infrastructure	28
4.2.1	Depots and Bus Parking.....	28
4.2.2	Other Infrastructure	28
4.3	Routes, Scheduling and Timetables	28
5	Record Keeping, Data Submission and Reporting	28
5.1	Annual Report to Contracting Authority	28
5.2	Trip information.....	29
5.3	Use of electronic data transfer.....	29
5.4	Duty numbers	29
5.5	Passenger perceptions of the service	29
5.6	Contract Monitoring	29
5.7	Vehicle Monitoring	31
6	Financial Matters	31
6.1	Fare Collection	31
6.2	Contract Pricing Structure	31
6.2.1	Overhead Cost Component.....	31
6.2.2	Fixed Cost Component.....	31
6.2.3	Variable cost component.....	31
6.3	Penalties	32
Appendix 1 : Example Vehicle Inspection Schedule		33

**George Integrated Public Transport Network
Annexure A - Specifications**

LIST OF FIGURES

Figure 1: Wheelchair pictogram as utilized in South Africa.....	7
Figure 2: Examples of sliding (left) and hopper (right) vents.	9

LIST OF TABLES

Table 1: Summary of Desired Bus Fleet.	2
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**George Integrated Public Transport Network
Annexure A - Specifications**

1 LEGAL MATTERS

This Annexure particularly is to be read in the context of the Road Traffic Act (Act 93 of 1996) and the National Land Transport Act (Act 5 of 2009) and subsequent Amendments.

2 BUS SPECIFICATIONS

2.1 SUMMARY OF REQUIRED BUS FLEET

The requirements at commencement of each phase are set out with the details of that Phase in Annexure B: Routes and Timetables. A summary is provided in Table 1.

2.2 GENERAL

1. All buses, irrespective of classification, mini, midi, standard or train bus must conform to the requirements and regulations of the National Road Traffic Act, (Act 93 of 1996) and amendments or any other applicable legislation and South African National Standards (SANS) specifications.
2. Details of the existing or proposed buses to be used on the services are to be provided on Form 14 in Annexure C: Contract Rates.
3. The representative bus capacities are specified in Annexure B: Routes and Timetables of the specification, in conjunction with the route descriptions. All buses shall have a minimum engine power as specified in section 2.6 of this document. Whilst the fleet may comprise vehicles from different manufacturers, all vehicles of a particular capacity shall, as far as possible, be of the same make and model throughout the contract. When additional vehicles are required, a written waiver must be obtained from the Contracting Authority for each vehicle type deviating from the approved make and model comprising the existing fleet. Such vehicles shall nevertheless comply with all the other specifications as set out below.
4. No vehicle will be introduced into the contract that has a date of first registration exceeding thirty-six (36) months preceding its introduction into the contract. In exceptional circumstances and upon receipt of a written motivation, a written waiver may be granted by the Contracting Authority for the temporary operation of a non-standard, older vehicle for a period of not more than three (3) months.
5. No midi or standard bus with a date of first registration exceeding fifteen (15) years at the time of use may ever be used to provide services in terms of this contract.
6. No minibus with a date of first registration exceeding five (5) years at the time of use may ever be used to provide services in terms of this contract.
7. The Contracting Authority will monitor the age of the vehicles continuously from the commencement date of the contract and must report on their ages to the Contracting Authority to ensure compliance with the above.
8. Every "new" vehicle specification must be homologated; i.e. certified by the SABS for conformance to all applicable national standards, the Road Traffic Act, its Amendments and Regulations, and a letter will be handed to each registered bus body builder stating that the new body complies with compulsory vehicle standards. The chassis Vehicle Identity Number of the first vehicle of such a batch or make will be quoted.
9. Except where explicitly stated, all vehicles carrying eighteen (18) passengers or more providing contract services shall provide for people with disability, which implies, *inter alia*, sufficient grab handles, visible signs conforming to specific sizes, high contrast colours on the door steps and the height of the door step, the use of audible and visual signals, the provision of preferential seating suited to physically challenged users and so on.
10. Noting that the Contracting Authority may request the provision of alternative specifications for specific routes as addenda to this contract, vehicles shall comply to the following:

**George Integrated Public Transport Network
Annexure A - Specifications**

Table 1: Summary of Desired Bus Fleet.

Nominal Bus Passenger Capacity	Seated/Standing	Approximate Annual Average km (PROVISIONAL ONLY)	Configuration	Desired Fleet¹ For Pricing purposes only.
14	All seated	80000 ²		40 (Existing Quantums)
45 (1)	Minimum 24 seated (Local commuter services)	45000 ³	High Floor or Low Entry (Low entry vehicle should incorporate a manual wheel chair ramp and wheel chair bay, which may include two flap down seats to provide the full required seating.)	20 As soon as available
45	Minimum 24 seated (Local commuter services)	45000	Low Entry. With wheelchair bay and manual wheelchair ramp or high floor vehicles with wheel chair lifts.	4 As soon as available
35	All Seated (Inter-town and airport services)	80000 ⁴	High Floor Same basic vehicle as (1) above, but semi-lux internal configuration: maximum seating with full back cloth upholstery, luggage racks and air-conditioning.	2 Immediately for airport service 4 When inter-town services are to commence, probably not earlier than Sept. 2012 and more likely Jan 2013.
90	Minimum 48 seated (Local commuter services)	30000 ⁵	High Floor or Low Entry. (Low entry vehicle should incorporate a manual wheel chair ramp and wheel chair bay, which may include two flap down seats to provide the full required seating.)	56 As soon as available
90	Minimum 48 seated (Local commuter services)	30000	Low Entry with wheelchair bay and manual wheelchair ramp, or high floor vehicles with wheel chair lifts.	4 As soon as available
Disabled Service vehicles	5 wheelchairs + 8 seated passengers	60000		1 immediately 1 within 1 year of commencement of services, if necessary (See footnote)

(Total of 132 vehicles – exact numbers will be confirmed when vehicle options are presented, but this should not affect base price of vehicles at these levels. The above includes 5 spare vehicles, at least one in each class except the Disabled Service Vehicles.)

¹ The purchase of low entry vehicles will be subject to affordability. If purchased, these will be used on specific duties to permit some degree of universal access. If introduced, the dedicated wheelchair fleet will be reduced to 1 vehicle

² These vehicles are required to work in a very wide range of environments, especially in the hills and on all the low volume routes and will probably do some work on routes not in the specification at present.

³ Community and Main services throughout the day

⁴ These vehicles operate on National Roads a lot of the time, and will be travelling between 40 and 60 km in each direction with few if any stops, with at least 6 round trips per day, 7 days a week.

⁵ Peak hour services only, although there might be some off-peak services on the two major corridors: Pacaltsdorp and Thembaletu.

George Integrated Public Transport Network Annexure A - Specifications

2.2.1 VEHICLE ACQUISITION

Owing to the phasing in of services, allowance is made in the contract for the use of existing minibuses and buses owned by the Operator at the time of service commencement. It is however a requirement of the contract that the Operator will commence services on a route with vehicles fully compliant with this specification within nine (9) months of the signing of an amendment to the contract that introduces that route or those routes. This compliance includes reference to all aspects of Section 3 of this Annexure as well as the requirements of Annexure B: Routes and Timetables as pertaining to the routes or other such specifications as may be included in the amendment introducing the additional route(s).

2.2.2 TERRAIN AND OPERATING ENVIRONMENT

The roads used for bus routes are mostly surfaced. The terrain within the service area varies from flat to mountainous terrain. Only standard road vehicles will be required, but to accommodate the variations in terrain, these must be powered as specified in section 2.6. Routes include urban routes with some peak-period congestion, local rural routes on paved and unpaved roads and medium distance, limited stop routes on paved rural roads. Some services will also operate along National Roads, where the top permissible speed for buses will be 100km/hr.

2.2.3 VEHICLE APPROVAL BY CONTRACTING AUTHORITY

The Contracting Authority must give written approval of the proposed vehicles prior to the acquisition of the vehicles and may request changes to specification of the proposed vehicles prior to giving such authorisation. A prototype must be available for inspection by the Contracting Authority. The inspection need not take place in South Africa. The prototype need not be physically identical to that offered, but should reflect all the main characteristics of the proposed new vehicles.

The Operator shall provide fully detailed specifications, including the following:

- Engine Speed vs. Road Speed for each gear
- Torque vs. Engine Speed
- Power output vs. Engine Speed
- Specific Fuel Consumption Chart
- Vehicle Speed vs. Grade (both loaded and unloaded) for each gear
- Vehicle Emission Standards vs. Engine Speed.
- Approach and departure angles
- Ground clearance (between front and rear axles)
- Front and rear overhang
- Overall vehicle dimensions

2.3 BUS LAYOUT

2.3.1 PASSENGER DOORS

- (a) All vehicles shall have their passenger doors on the left hand side.
- (b) On all vehicles with passenger capacities of thirty-five (35) passengers or more, front and rear passenger doors shall be provided and these shall be separately operable by the driver.
- (c) The passenger doorway configuration and size shall assist in the rapid and convenient boarding and alighting of passengers, including special needs users, which includes, parents with prams, people with crutches or other walking aids, the blind or partially sighted and so on. Passengers using wheelchairs will be accommodated on selected vehicles offering either low entry with a manually deployed boarding ramp, or a wheelchair lift. The door opening is to be not less than 1100mm wide and 1800mm high measured from the first step tread.

George Integrated Public Transport Network

Annexure A - Specifications

The front left-sided doorway, shall be located adjacent to the driver to enable the driver to observe door usage without additional equipment or undue effort.

- (d) On all vehicles carrying thirty-five (35) passengers or more, passenger doors shall be 2 x double-leaf folding door operated and activated by the driver. The doorway operation shall not result in disturbing noise levels. (The Contracting Authority requires a demonstration of the offered door mechanisms and reserves the right to reject a door mechanism based on a subjective measure of the noise levels generated.) Where pneumatics are used, the vents must be such as to minimise noise within the bus – either through the use of mufflers or through venting to the outside of the bus.

Doors shall be equipped with seals so as not to allow water, dust or air to flow around the edge of the door when closed. The lower edge of the door shall have a rubber weather strip.

The leading edges of the doors shall be fitted with auto-rebound pressure sensors to protect passengers during the closing process.

- (e) On vehicles carrying less than thirty-five (35) passenger, the doors design shall be appropriate for the vehicle and service for which it is intended:
 - 14-22 passenger minibus type vehicles will use the standard vehicle door configuration
 - 22-35 passenger midi bus type vehicles should have appropriately sized doors designed to minimise the risk of passengers on the ground being injured by the opening or closing door.
- (f) Allowance is to be made for the mounting and supply of power to electronic fare media scanning devices at all vehicle doors. The equipment will be provided by others and details will be provided during the vehicle procurement process.
- (g) Where the vehicle incorporates steps, the first step is to be not more than 250mm above the ground (retractable first step is also permissible), following steps with a maximum riser height of 230mm and a minimum tread depth of 200mm;
- (h) SABS yellow reflective tape is required at the top of each riser on the steps;
- (i) Doors shall not open until the vehicle comes to a stop. Doors shall have an interlock control with brake and accelerator to prevent movement of vehicle with doors in open position.
- (j) The door closing speed and force shall be limited to avoid injury to a passenger caught in a closing door. All doors shall be equipped with sensitive edges that will cause the doors to cycle open and reattempt the closing process when the edges encounter an obstruction. A maximum force of 11 kilograms shall be required for a passenger to get free after having either door close upon them even if the sensitive edge or safety device on the door is inoperative. Door alarm and dash light notification will be provided in cases where a person pushes the sensitive door edge or puts objects between edges when the door is in the closed position.

In the event of an emergency the doors shall be able to be opened manually from inside the vehicle using a force of not more than 11 kilograms after actuating an unlocking device located at the door. The unlocking mechanisms must be protected from casual access by means of breakable cover or seal and an audible alarm should be activated with the manual override button. A manually operated emergency control, accessible from outside the bus, shall be installed so that when the control is triggered, the door control system allows the doors to open. The system should also be such that failure of the door controls permits the doors to be manually opened if the vehicle is not moving.

2.3.2 PASSENGER SEATING AND RELATED

- (a) Standard “urban low back” seats shall be installed in all standard buses, except those intended for inter-town services which shall have high back seats. These seats may have top and side hand holds for standing passengers. The colour and

**George Integrated Public Transport Network
Annexure A - Specifications**

pattern of the vinyl in all vehicles is to conform to that approved for the fleet livery. Seat frames may be any high contrast colour excluding red and green;

The seating should be in a 2 x 2 configuration between passenger doors, but may be 3 x 2 or some alternative configuration behind the rear passenger door to achieve the desired seating capacity.

A minimum 730 mm seat pitch shall be provided. At preferential seats the clear distance from the front of the seat to the rear of the next seat shall not be less than 230 mm. Where the preferential seat faces a bulkhead or partition more than 1 200 mm in height, this distance is to increase to a minimum of 300 mm. The seat width shall be a minimum of 420 mm.

The Operator shall provide drawings of the proposed interior layout of each vehicle for approval prior to placement of the purchase order for the vehicles.

- (b) Standees shall be provided with not less than two (2) longitudinal grab rails fixed to the roof running the full length of the passenger area with riser posts to the rear of seats at not more than 3m spacings along the length of the passenger area. Similar grab rails on the doors, accessible from ground level when the doors are open and following the line of the steps. All grab rails to be 25mm to 35mm diameter and finished in yellow paint with an orange-peel finish;
- (c) Raised markings are to be provided on hand rails adjacent to entrances and stop-call buttons;
- (d) Lettering on all signs inside the vehicle to be 25mm for a viewing distance of 7,5m;
- (e) An audible buzzer is required in the centre of the lowest step of the entrance that is interlinked with the door so that the buzzer activates when the door is fully open. The buzzer must be audible from at least 3m from the door with the bus engine running and must have a zero to full volume adjustable volume control that can be adjusted by the vehicle maintenance staff;
- (f) Reserved seating will be demarcated near vehicle entrances for people with disabilities, the elderly, pregnant women or passengers with any other mobility difficulties. The reserved seating is to include sufficient space in front of at least one seat to allow for a guide dog in harness.
- (g) Ventilation shall be through two roof vents/escape hatches of the standard "two position" type for vehicles in excess of eight metres in length. Minibus type vehicles do not require such roof vents.
- (h) Parcel shelves shall not be provided as standard, but should be available as optional extras for the inter-town buses.
- (i) Subject to possible amendment in the final livery detail by the Contracting Authority, the interiors shall be standard grey tones with a standard dark blue floor material.
- (j) Interior lights shall be provided in the passenger section. These shall be set flush with the lining and to an approved design.
- (k) An electric clock shall be provided in the centre of the overhead bulkhead at the front of the bus, visible to passengers at the back of the bus.
- (l) Except in fourteen (14) passenger vehicles, 1 x speaker per three (3) metres of vehicle length, mounted in the roof lining along the length of the passenger compartment, shall be provided with cables lead to the driver console (no radios or PA systems shall be installed at this stage).
- (m) New vehicles will be painted in the selected base colour or colours at the factory. A sample of the approved paint colour or colours shall be sent to the factory where a sample of the automotive paint will be prepared with all primer and base coats and sent back to the Contracting Authority for approval.
- (n) Vehicles will be finished to a detailed Livery Specification, which will be provided by the Contracting Authority, and an example vehicle is to be approved in writing by the Contracting Authority prior to application of full livery to all vehicles. Three colour body painting is to be allowed for in pricing.

**George Integrated Public Transport Network
Annexure A - Specifications**

2.3.2.1 Special needs seating

Certain of the core fleet vehicles, i.e. buses other than the Dial-a-Ride service vehicles, shall include provision for wheelchair bays as well as priority seating areas for other special needs passengers.

a. Wheelchair bays

Bays shall be wheelchair accessible to the door at which wheelchair provision is made: The front door in a low entry type vehicle and at whichever door is fitted with a wheelchair lift otherwise.

- Wheelchair bays shall have the following characteristics:
 - Bays shall be not less than 1800 mm long.
 - The bay may also be used by passengers with prams. Signage noting this usage shall be affixed to the side wall of the interior space near the bay. The Contracting Authority will provide text and artwork for installation by the Operator during the pre-production phase..
 - The wheelchair bay shall be either forward or rearward facing and is to be provided with an approved independent passenger and wheelchair restraint system including a seat belt and stanchions / retractable handrails as necessary. The equipment is to comply with ISO 10542 and be installed in accordance with SANS 10370.
 - The wheelchair bay shall include a padded backrest to minimise injury arising out of the passenger's head being thrown backwards (relative to the wheelchair) by sudden acceleration or deceleration of the vehicle, as may be relevant to the direction in which the wheelchair faces..
 - At least 2 flip-up/down side-facing seats are to be added to each wheelchair bay.
- b. Preferential seats**

Preferential seats shall be provided for near the passenger doors and shall be accessible without a step from the main floor of the bus being required for access to these seats. The seat pitch seats should preferably be greater for these seats than other seats in the vehicle. There shall be a minimum of two preferential seats near each passenger door. Four such seats per door would be preferred.

Preferential seating shall comply with the requirements of SANS 20107: Annex 8 (Clauses 3.2.2 to 3.2.7).

The preferential seats shall be distinguishable from other seats through two mechanisms. First, the seats must be red. Second, as noted in the next section, pictograms on the nearby sidewall will indicate that particular passengers always have priority for the seats.

c. Pictograms

Where a bus offers the facility, wheelchair bays shall have pictograms in accordance with SANS 20107: Annex 4, Figure 23A. (See Figure 1 for an example.) The pictograms shall be visible from the outside, both on the front of the vehicle and adjacent to the relevant passenger door. Appropriate pictograms shall also be placed internally adjacent to each special needs bay and preferential seating area.

The pictograms will indicate that the area is for the preferred use of disabled persons and passengers with prams.



**George Integrated Public Transport Network
Annexure A - Specifications**

**Figure 1: Wheelchair pictogram as utilized in
South Africa.**

d. Communication requirements

A means of communicating with the driver shall be placed adjacent to any preferential seat and within any special needs bay and shall comply with the requirements of SANS 20107: Annex 8 Clause 3.3. The device shall alert the driver to an emergency situation or urgent request.

2.3.2.2 Grab-rails / stanchions / straps

a. Grab-rails and stanchions

- Full grip grab-rails and stanchions shall be provided for the safety of the standees and for ingress and egress.
- Grab-rails and stanchions shall be properly supported and held in place according to industry standards. Fittings and fasteners used shall be of stainless steel.
- Ceiling grab-rails, one on each side of the vehicle aisle, shall be in line with the aisle edge of the seats and shall extend from front to rear of vehicle.
- If relevant to the chosen interior design, a horizontal passenger assist shall be placed across the front of the vehicle in order to prevent injuries on the windshield in the event of a sudden stop.
- High contrast yellow shall be used for the grab-rails and the stanchions. Operators are to provide clear graphics showing the proposed colour or colour alternatives. Where alternatives are offered, the selected colour will be confirmed by the Contracting Authority in the Operator Contract.

b. Straps

- Colour coordinated subway straps shall be installed on grab-rails running the length of the vehicle. The straps shall be of a soft, but strong and durable material such as leather and shall have a positive fastening system.

c. Standing passengers

- Within the limitations of the given maximum axle loads and a maximum design standing passenger density of 4.5 passengers per square metre, standing is to be promoted on the system for the short routes, to minimise fleet requirements. (It is noted that the legislated standing density is higher, and that the legal capacity of the vehicle may thus exceed the "design" capacity. The displayed capacity should be the legal capacity.)

d. Seating materials

- The structure of the seat shall be hard, durable plastic. The passenger contact areas at the base and at the back shall be readily replaceable and of a durable soft padded plastic or synthetic cloth material, easily maintained and cleaned. Two sets of replacement panels shall be provided with each vehicle. The failure of the Operator to have spare seats shall not relieve him from the imposition of penalties.
- Where alternatives are offered, the final colour of the seat will be specified by the Contracting Authority in the Operator Contract.

2.4 BUS BODY

2.4.1 STRUCTURE

The body shall be designed on the principle of durability in order to meet the useful vehicle life of 12 years or 1 million kilometres, whichever of these two milestones arrive first. The body shall be suitably reinforced at joints where stress concentration may occur. The vehicle shall safely withstand road shocks and other conditions found in urban services. Body panelling shall have adequate thermal and acoustic properties and shall not vibrate unduly while the vehicle is in operation. The vehicle shall retain structural integrity throughout its service life, when maintained in accordance with the procedures specified in the service manual.

2.4.1.1 Materials and corrosion resistance

High strength corrosion-resistant material shall be used in construction of the body. All metal body parts shall have protective coatings suited to the coastal climate of Cape Town, and where exposed to the sun, the coating shall also be UV resistant. Materials subject to shrinkage with time must be installed to accommodate the shrinkage so that no gaps develop over time.

The body and all joints shall be protected against corrosion and leakage. All contact areas of dissimilar metals shall be protected against galvanic corrosion. Where provided, all external mouldings and beading shall be of a UV resistant material.

2.4.1.2 Body shape

The appearance of the vehicles will play a significant role in transforming the public's perceptions of public transport services. The Contracting Authority therefore prefers stylized body designs that evoke a modern appearance with sleek and aerodynamic curve lines.

The exterior and body features, including grilles and louvers shall be shaped to allow complete and easy cleaning by an automatic vehicle washer without snagging washer brushes. Water and dirt shall not be retained in or on any body feature of the vehicle after leaving the washer.

2.4.1.3 Painting

The painting of the vehicle shall employ modern best practice and produce a high quality finish. It is preferred that the paint materials and application procedures utilised be as environmentally-friendly as possible, including consideration of water-based paints.

The coatings shall be hard wearing, able to withstand 5 year operation without any visible corrosion or degradation in a coastal environmental (salt deposits) with high levels of UV exposure, and in the operating conditions of an urban public transport vehicle. Such wear resistance shall include the ability to withstand regular machine-washing of the vehicles. The process and materials used shall be such as to allow ready repainting of minor scratches and scrapes.

All primers, sealers, paint and any other materials used shall be compatible to assure chemical bond, adhesion, overall gloss retention, and to assure full warranty by the manufacturer. All paint application shall be in accordance with the specifications of the paints used.

The finish coat shall be free of runs, sags, and areas of no gloss. There shall be no bare or exposed metal surfaces showing on the exterior of the vehicles, exclusive of ornamentation, accessories, and bumpers.

The underside of the under-frame, flooring and stepwells, wheel housings and all exposed under-floor surfaces shall be treated with a fire-retardant coating.

2.4.2 WINDOWS

Windows shall be provided along the sides of the vehicle as well as at the rear of the vehicle. These shall have the following characteristics:

George Integrated Public Transport Network Annexure A - Specifications

- The window areas shall be as large as possible to give the seated and standing passengers an unobstructed exterior view. The window unit shall be a minimum of 980 mm in height.
- Windows shall be of the bonded type. Windows shall not be mounted in rubber moulds.
- All glass shall be tinted to an approximate level of 70% to 80% light transmission (i.e. glass permits approximately 70% - 80% of light to enter).
- Side windows shall have the look of a seamless or continuous window when viewed from outside the vehicle. All windows shall be structurally adequate for the purpose.
- The exterior of the windows shall withstand damage and scratching from use of a vehicle wash system. This would include, but not be limited to soaps, spinning brushes and hand brushes.
- A positive lock type emergency latch shall be furnished on each emergency window frame. Each window shall have a decal describing emergency window operation procedures. The location of the decal shall be determined by the Contracting Authority.
- Side windows shall be designed to prevent the entrance of air and water under all conditions (wind, rain, etc.) when windows are closed.
- At least 50% of the windows shall provide the option of being opened by the passenger. The actual number of windows with vents shall be determined during pre-production planning with the Contracting Authority. The window opening shall be a top sliding vent or a top hopper vent. Examples of sliding and hopper vents are given in Figure 2.



Figure 2: Examples of sliding (left) and hopper (right) vents.

Care shall be taken in the positioning the windows so as not to cause excessive draught in the head position of a passenger, especially anyone who is not the passenger opening the window. The height of the top vents shall be such that they do not cause wind to blow directly in the face of passengers.

The design of the window and the top vents must be approved by the Contracting Authority during the pre-production period.

a. Windshield and windshield wipers

The windshield and windshield wipers shall have the following characteristics:

- The windshield shall be shaped, rather than flat, to support the desired modern, streamlined appearance desired by the Contracting Authority.
- The windshield shall be designed for easy replacement and maintenance.

**George Integrated Public Transport Network
Annexure A - Specifications**

- Windshields shall be angled sufficiently to reduce glare from the interior vehicle lighting.
 - A fully adjustable sun visor shall be installed for driver's use. The installation shall preclude vibration in normal street operation. The visor shall be a full see through, mesh style with a release cord that allows the visor to return to the normal position.
 - Two (2) electric-operated heavy duty windshield wipers with self-parking feature shall be furnished. The wiper motors shall be variable speed having at least a high and low speed setting with an intermittent setting. There shall also be a "mist" mode where the wipers shall make approximately 2-3 swipes per minute.
 - A windshield washer shall be provided.
 - The largest wiper blade possible for windshield design shall be used.
 - Wiper motors and washer water reservoir shall be installed in an easily accessible location for ease in maintenance and inspection. Wiper motors shall be accessible from the exterior of the vehicle and properly sealed.
- b. Driver's side window

The driver's side window shall have the following characteristics:

- The driver windows shall be glazed with tinted laminated safety glass. Glass shall be tinted at the top third (1/3).
- The driver's side windows shall be split, sliding windows. The sliding portion shall move freely without rocking or binding.
- Driver's side window shall have a see-through pull down shade.

2.4.3 EXTERIOR PANELS, ROOF GUTTER, AND BUMPERS

a. Exterior panels

Exterior panels shall be sufficiently stiff to prevent vibration, drumming or flexing while the vehicle is in service.

Sealing and fastening of joints shall prevent entrance of moisture and dirt. All exterior panels shall be bonded or welded to the body frame.

Special care shall be taken with the outside sheathing, roof, roof bonnets and the interior finish so that all kinks and buckles are removed before assemble and so that they present a true, smooth finish without grinding or cutting material below its standard thickness.

b. Roof gutter

A roof gutter shall be installed if the body style does not stop water flow into or onto windows, doors, and mirrors. They will be installed over the side windows and doors, if necessary.

c. Bumpers

The vehicle shall incorporate energy absorption bumpers so that no structural or body part of the vehicle shall be damaged as a result of the vehicle rolling, on a horizontal surface, perpendicularly, backwards or forwards into an immovable barrier at five (5) kph. The energy absorption system of the bumper area shall not require service or maintenance in normal operation during service life of the vehicle.

2.4.4 WING MIRRORS

Vehicles shall be equipped with two convex, electrically adjustable outside rear view mirrors, mounted on the front corners of the vehicle. The mirrors shall be fitted with de-misters and all the control switches shall be mounted in a position readily accessible to the driver whilst sitting in the normal driving position.

The mirror frame shall be mounted with a single attachment point from above. The mirror assembly shall be of the shock-absorbing type, able to deflect out of its normal position on light

**George Integrated Public Transport Network
Annexure A - Specifications**

impact, especially from the front, to minimise the opportunity for damage. Ideally, the mirrors will be mounted so as to be within the swept arc of the front of the vehicle.

Spare parts for wing mirrors shall be readily available and are to be itemised and priced separately as a stock item in the relevant schedule.

In addition to the mirror assembly being of the shock-absorbing type the assembly mount should be detachable at the body interface to minimise body damage in the event of a heavy-impact.

Wing mirrors shall meet the SANS requirements.

2.4.5 EXTERNAL ACCESS POINTS

- a. External access doors
 - Access doors shall be provided, where necessary, for the easy maintenance of equipment.
 - Access to the engine compartment, transmission compartment, radiator compartment, and ITS control compartment doors shall be controlled by some form of universal key access ("T" key style is acceptable).
 - Access doors shall be provided with positive hold open devices and corrosion resistant latches. Side access doors shall have flush type latches. Doors shall be of a rugged construction and shall be capable of withstanding regular use and resistant to unauthorised access.
 - When the engine access door is open, it shall not obstruct the rear vehicle lights.
 - There shall be an access door for emergency workers to gain entry to the "Battery Disconnect" and it shall be labelled as such. This access door shall not require tools to gain access.
- b. Roof escape hatch / air vents
 - Emergency roof escape hatches shall be provided in each vehicle.
 - The hatches shall have a seal around the opening, and shall be opened by pulling the release handle. Instruction decals shall be placed on the underside of the hatch.
 - Roof hatches shall also be suitable to act as fresh air ventilators during warm weather.

2.5 BUS INTERIOR

2.5.1 INTERIOR DECOR

- a. Colour scheme

The colour of the wall panels shall contrast with that of the surface of the floor and this contrast is to be most clearly defined at the junction of the floor to the wall. In general, the internal colour scheme is to be proposed by the Operator, but should be non-marking, with a light and airy feel. The Operator should include clear graphics showing examples of that offered in the approval documentation.

The Contracting Authority's colour choices will be confirmed in the Operator Contract.

- b. Panels and trim

The interior of the passenger doors shall blend in with the appearance of the vehicle interior.

The interior side walls, ceiling trim panels, and sections between large side windows down to the bottom of the window openings shall be of an aesthetically attractive and durable material. A sample of the interior panel shall be provided as part of Technical Schedule T2.2.6 (Sample Materials).

Panels shall be installed with no droop or buckling across the width of the panels and shall be secured without loose edges.

- c. System and Route Maps

System maps shall be placed on all vehicles. At least one location on each vehicle shall be available for a replaceable system map. Ideally the map will be placed near the front or the middle

**George Integrated Public Transport Network
Annexure A - Specifications**

of the vehicle. The panel behind the passenger doors is considered most appropriate, subject to limited obstruction of the driver's view of the vehicle interior. The Operator shall note the proposed location of the system map(s) in the drawings submitted for the interior of the vehicle. System maps of portrait mounted A2 size will be preferred.

Linear route maps will be installed opposite the doors, above the windows as discussed in Section d. below.

The Operator shall provide the mount for the map(s) and install the first maps, which will be provided by the Contracting Authority during vehicle production.

d. Advertising

In order to optimise system revenues, some discrete advertising space will be permitted inside the vehicles. The preferred space will be in the form of rectangular panels above the windows, throughout the length of the vehicle, where practical and not required for the linear route maps. This space will be reserved for the use of the Contracting Authority.

2.5.2 DRIVER'S COMPARTMENT

a. Driver's seat

The driver's seat shall include: headrest, high back, lumbar support, air operated height adjustments, side bolsters and fore and aft slide. The driver's seat to come equipped with a 3-point seat belt, and an alarm indicating that the handbrake has not been applied when driver takes pressure off the seat. The seat shall be upholstered in all cloth fabric. Driver compartment to be separated from passenger compartment by a screen/barrier i.e. $\frac{3}{4}$ door across access to driver compartment without impeding drivers ability to observe LHS entry/fare validation equipment.

b. Compartment ergonomics

The Operator shall ensure state of the art ergonomic engineering for the vehicle driver's environment so as to maximise driver comfort and ease of operation for extended periods of time.

All switches and controls necessary for the operation of the vehicle, including door master, shall be conveniently located in the driver's area and shall provide for ease of operation in the context of their function and frequency of use. Switches and controls shall be within the hand reach envelope.

Controls shall be located so the boarding passengers may not easily tamper with control settings.

c. Interior mirrors

Mirrors shall be provided for the driver to observe passengers throughout the vehicle without leaving his/her seat and without shoulder movement.

d. Signage

Signage shall be provided near the driver's compartment. The signage shall state that the driver carries no cash and that the driver is not able to provide any change. The signage shall also state that any of abuse of the driver shall result in prosecution.

The exact wording of the signage will be provided by the Contracting Authority during the pre-production stage.

e. Additional requirements

Over and above any other items that may be listed elsewhere in this specification, the following are to be provided in the area of the driver's compartment:

- A basic tool box fitted behind the driver

**George Integrated Public Transport Network
Annexure A - Specifications**

- A triangle kit for roadway incidents.
- A lockable storage holder next to the driver for storage of personal belongings
- Provision of space / holders for operating license certificate and valid operational permit on dashboard or driver side window.

2.5.3 FLOOR

a. Floor base

The floor base shall be resistant to moisture and moisture related deterioration.

The under-floor frame shall have sufficient and appropriate stiffeners to keep the flooring from excessive flexing under maximum loads.

Floor fasteners shall be placed on each side of splices and shall be secured and protected for the life of the vehicle.

An anti-squeak material shall be placed between the floor and under-floor frame members and around wheel housing.

b. Floor covering

The aesthetically pleasing floor covering shall be durable heavy-duty non-slip material with a minimum thickness of 2 mm. The walking area of the floor shall be level in each section.

The floor covering shall be capable of withstanding daily mopping / wet scrubbing and joints shall be sealed to prevent liquids from seeping under the covering.

The colour of the floor at the passenger doorways shall contrast with that elsewhere in the vehicle and a high contrast colour warning strip of minimum 20 mm width shall be provided at the bottom of each door.

The Operator shall provide samples of the floor material with the submission of their vehicle approval documentation. Where alternatives are offered, the Contracting Authority's choices will be confirmed as part of the vehicle approval process.

c. Access doors in floor

Access openings in the floor shall be avoided as far as possible. When absolutely required for maintenance, access doors shall be sealed to prevent the entry of fumes, liquids, or dust, and shall be securely fastened with appropriate fasteners, and shall not create a tripping hazard. All holes in the floor material, for mounting bolts, seams, etc., shall be caulked and sealed before sanding.

d. Wheel housing

To the extent that any exposed wheel housings are present in the interior space:

- The wheel housing shall be finished on the vehicle interior to withstand scuffing, wear and abuse from passenger feet. The wheel housings shall be trimmed and sealed at all mating edges.
- The colour of the wheel housing shall complement the vehicle interior. Operators are to propose colours in keeping with the general colour scheme inside the bus. The Contracting Authority's choices will be confirmed in an addendum to the Operator Contract.

2.5.4 INTERNAL PARTITION PANELS

Floor to ceiling shatterproof partition panels shall be installed at the rear side of the doorways and behind the driver:

- The partition panels shall be opaque below (modesty panel) and transparent above 900 mm so that the driver has a clear view of the passenger area.

**George Integrated Public Transport Network
Annexure A - Specifications**

- The partition panels shall be of material suited to the purpose and able to withstand any normally experienced level of impact from passengers or luggage. The driver panel in particular should be highly resistant to impact, even from deliberate assault with a solid object.
- Partition panels shall incorporate hand-holds that assist seated passengers in arising or steadying themselves.
- Where relevant, adequate clearance shall be provided for passenger's hands between partition panel hand rails and the rear half of door, during complete opening and closing cycle.

2.5.5 FIRE AND SAFETY EQUIPMENT

The vehicles shall incorporate at least one dry chemical extinguisher, with hose assembly, satisfying Road Traffic Act requirements, accessible to the driver without the need to move or open anything except the fire-extinguisher quick release bracket. A second, fire extinguisher should be accessible in or near to the engine compartment. The size of this should be related to the requirements of extinguishing a fire in the engine compartment.

The extinguishers shall have a South African certification tag attached at the time of acceptance. If the fire extinguisher is mounted in a storage compartment, it shall be clearly labelled "Fire Extinguisher inside".

The fire extinguishers shall be located in easily accessible locations. Mounting of the extinguishers shall be rigid and in such a way as to prevent vibration, noise and accidental discharge.

The interior of the vehicle shall be fitted with the required fire and safety decals.

2.5.6 AIR-CONDITIONING

Where air-conditioning is specified, buses are to be provided with air-conditioning that can achieve 10°C below ambient temperature inside the full bus within 30 minutes of being engaged. The air-conditioner shall distribute air evenly throughout the vehicle.

In order to satisfy environmental requirements, commonly available HydroFluoroCarbon (HFC) or similar low environmental impact refrigerants shall be used.

2.5.7 INTERIOR INSULATION

Aside from the general thermal and acoustic requirements for the body, any seat area over the engine shall be heavily insulated for both noise and heat protection with fibreglass blankets or an equivalent material to be specified in the tender and the approved choice shall be noted in the Operator Contract.

2.6 BUS POWER PLANT AND TRANSMISSION

The bus Operator is to familiarise itself with the routes to be operated in accordance with the Operations Contract and to ensure that the vehicles offered are suited to the terrain in terms of engine power, gearbox type and drive train ratios.

2.6.1 ENGINE

a. Isolation

Engines will be separated from the passenger compartment by means of a sound, vapour and fire proof wall.

b. Design life

The propulsion system shall have a design life of at least 1 000 000 kilometres, subject to proper operating and maintenance practices. The Operator is to acquire and consider the details of the operating parameters and maintenance schedule required for the specified design life and operational performance set out in this specification.

**George Integrated Public Transport Network
Annexure A - Specifications**

c. Power

The diesel engine shall provide the greater of 11 kW per ton gross vehicle mass or that required to maintain:

- 100km/hr on level terrain
- 70 km/hr on 2% upgrade
- 50 km/hr on 4% upgrade
- Negotiate a 12% grade

d. Other requirements

In addition to the above, the following criteria shall be met:

- The engine shall be equipped with a failsafe engine shut down device designed to protect the engine and vehicle from any serious damage arising from overheating (coolant or metal), low coolant level, low oil pressure or other relevant deviation from the normal operating conditions. (It is envisaged that this system will have two or three modes: 1) That limits the engine power but allows the bus to proceed safely at limited engine load; 2) That shuts down the engine completely, cutting off fuel supply; 3) That disconnects all electrical systems after shutting down the engine (fire protection.)
- The vehicle will incorporate a mechanism to limit the maximum vehicle speed to 100 km/hr.
- The engine mount shall provide maximum isolation of audible frequencies over the range of 35Hz to 275Hz. All power plant mounting shall be mechanically isolated to minimise transfer of vibration to the body structure.
- The air intake location shall be chosen to minimise the intake of dirt and dust, noting that some vehicles may be required to work on unsurfaced roads. Air filters shall have easy access for removal and installation.
- The air filter shall be monitored by a filter minder. The minder shall be installed as to give true and accurate readings and be mounted in a location easily viewed and reset by the maintenance staff.

2.6.1.1 Maintenance and servicing

The engine compartment shall be arranged so that accessibility for all routine maintenance is assured. No special tools, other than dollies and hoists shall be required to remove the power plant. Quick connectors shall be used on all lines for ease when removing the power plant. The power plant shall be removable as one complete unit.

The muffler, exhaust system, air cleaner, air compressor, starter, alternator, radiator, all accessories and any other component requiring service or replacement shall be easily removable and independent of the engine and transmission removal.

Engine bay oil pressure gauge and coolant temperature gauges shall be equipped with maximum indicator pointers. These gauges shall be easily read during service and mounted in an area where they shall not be damaged during minor or major repairs.

Adequate engine compartment lights shall be controlled by a switch in the engine compartment and shall facilitate maintenance and inspection.

The engine oil filler shall be located inside the engine compartment.

All fluid fill locations shall be permanently labelled to help ensure correct fluid is added; and all fills shall be easily accessible with standard funnels and pour spouts. All lubricant sumps shall be fitted with magnetic type, hex head drain plugs of a standard size.

All hydraulic lines shall be compatible with the hydraulic fluid and maximum pressures of the system. The use of flexible lines shall be minimised. Non-interchangeable lines with the same fittings as on other piping systems of the vehicle shall be tagged or marked for use on the hydraulic

**George Integrated Public Transport Network
Annexure A - Specifications**

system only. Hydraulic lines shall be individually and rigidly supported to prevent chafing damage, fatigue failure and tension strain on the lines and fittings.

The hydraulic system shall be configured and/or shielded so that failure or any flexible line shall not allow hydraulic fluid to spray or drain onto any component likely to be operating at above the auto ignition temperature of the fluid.

2.6.2 EXHAUST SYSTEM

The bus stops to be served by these vehicles are located on the left-hand side of the vehicles. It is required that the exhaust is emitted from a location on the lower rear right-hand side of the vehicle.

The exhaust and tail pipes shall be designed to provide sufficient clearance from the running gear under all operating conditions. Exhaust system parts shall not foul the axle, or any part of the vehicle when the vehicle body is raised on the jacking pads. The tailpipe shall extend slightly beyond the edge of the body to prevent exhaust from being trapped under the body and discoloration of body panels.

Electrical wiring shall not be routed close to any exhaust component to prevent wiring damage.

a. Selective Catalytic Reduction Fluid (Ad Blue)

If the engine is expected to make use of Selective Catalytic Reduction requiring a consumable liquid additive such as "Ad Blue", the filler point for this additive shall be placed close to the fuel filler, precautions being taken to avoid cross-contamination.

2.6.3 COOLING SYSTEM

Vehicles must be able to operate continuously at full load in ambient temperatures of up to 40°C. The buses will operate in general traffic and so will be subjected to congestion traffic conditions, and will be required to stop frequently at bus stops and signalised intersections along the route. Operating gradients of 8% may be encountered on some routes for a short distance and 4% may be encountered for up to 10 kilometres on the inter-town routes.

The engine shall use liquid cooling and the radiator shall be of durable corrosion-resistant construction with bolted-on removable tanks. The radiator shall be of sufficient size to properly cool the engine, transmission, retarder and related components used in heavy service under the conditions noted above.

Adequate access shall be provided for inspection and filling of the cooling system from outside the vehicle without removing any other equipment. A sight glass to determine satisfactory engine coolant level shall be provided and shall be accessible by opening one of the engine compartment access doors.

A spring-loaded, push-button type valve to safely release pressure or vacuum in the cooling system shall be provided, with both it and the water filler being accessible through the same access door.

2.6.4 FUEL SYSTEM

a. Fuel type

Noting that, in general, the best quality diesel available in South Africa has 50 ppm sulphur content, fuel additives are permissible if necessary to achieve optimum environmental impact, but these must be readily available and provision for their addition to the vehicle system must require no special tools or skills.

b. Filters

**George Integrated Public Transport Network
Annexure A - Specifications**

The fuel system shall incorporate adequate filtration devices including a readily accessible particulate filter and a water trap with warning lights in the driver compartment a problem with either.

c. Fuel tank

The fuel system shall comply with all relevant South Africa legislation and any South African National Standards that might be applicable. Particular attention is to be paid to ensuring that the fuel tank poses the minimum possible hazard to passengers in the event of an accident.

The corrosion and heat resistant fuel tank(s) shall be made sufficiently heavy gauge material internally to prevent baffled surging. The tank shall be internally braced and externally supported in such a manner as to eliminate the possibility of developing vibration fatigue cracks. All openings shall have adequate stiffeners so that a flat surface is presented to the attaching plates.

The fuel tank(s) shall be securely mounted to the vehicle to prevent movement during vehicle manoeuvres, but shall be easily removed for cleaning or replacement. The tank shall have an inspection plate or removable filler neck to enhance cleaning and inspection. The tank shall be baffled internally to, prevent fuel sloshing regardless of fuel level.

It is preferred that the fuel tank is sized to allow for at least 300 kilometres of operation on a single tank.

The tank shall either be located between chassis frame members or protected by a steel barrier to provide protection in the event of a side body impact.

The fuel gauge shall be mounted at the filler access door and the sending unit shall have an access panel to gain access without removing the tank. The sensor and driver's fuel gauge are to be accurately calibrated to reflect the actual tank contents to within approximately 5% of the true value when the vehicle is on level ground.

d. Filler provision

The tank filler pipe shall be so designed as to prevent back splash when the tank reaches full, as the fuel fill nozzle shuts off.

2.6.5 ENVIRONMENTAL AND SAFETY STANDARDS

a. Emission standards

In addition to being EURO IV compliant, vehicles shall also conform to the air-pollution control standards of the South African Department of Environmental Affairs and Tourism (DEAT) and all other local air-pollution requirements as established for the year of vehicle manufacture.

b. Noise standards

In no mode of operation shall the vehicle generate external noise levels greater than 83 dbA, measured 15 metres from the centreline of the lane in which the vehicle is travelling.

The vehicle-generated exterior noise at idle shall not exceed 65 dbA.

The interior noise at any location greater than 300 mm from an interior window or wall and 1200 mm from the floor shall not exceed 80 dbA during any vehicle operating condition.

The test methods and standards applied shall be those set out in the "Transport Canada - Road Safety - Test Method 1106 — Noise Emission Tests" and its associated schedules. Details may be found on the internet at the web address:

http://www.tc.gc.ca/eng/roadsafety/safevehicles-mvstm_tsd-tm-1106_e-665.htm

George Integrated Public Transport Network

Annexure A - Specifications

Where the requirements of the Canadian "Schedule V.1, (Section 5), Noise Emissions (Standard 1106) exceed those noted above, the latter shall apply.

c. Safety standards

The vehicle must meet all safety performance standards set for public transport vehicles by the South African Bureau of Standards (SABS).

Notwithstanding the noise standards specified in this clause, all door and boarding ramp/bridge actuation equipment shall generate a low noise level when operated and further the equipment shall be effectively insulated, if necessary to prevent excessive actuation noise entering the vehicle interior when operated.

2.6.6 TRANSMISSION

Vehicles shall be equipped with electronically controlled automatic gearboxes, suited to the bus, that are matched to the engine and other drive train components to ensure the required performance characteristics over the full vehicle operating range. The system gearbox shall provide smooth power transfer throughout the power range and shall not transfer any power when the gear selector is in neutral.

The gearbox shall be equipped with a starter interlock to prevent engagement of the engine starter unless the transmission is in neutral and then only if the engine is not running.

The gearbox shall be controlled by a key shift pad that shall indicate the selected gear and also provide electronic readings of fluid level and failure codes. The transmission control shall be designed to protect the transmission from any possible damage as a result of improper use of controls. The transmission shall be equipped or wired so that it cannot be shifted from forward to reverse or vice versa while the vehicle is in motion.

A conveniently located filler and dipstick tube for checking and filling the transmission shall be provided. The transmission oil filter and dipstick shall be located so that it is not be a burn hazard and must be accessible with the engine compartment door open. Adequate transmission cooling shall be provided for heavy load operation in the ambient conditions encountered in the Eden District.

2.6.7 DRIVE SHAFT

The drive shaft shall be suited to the mass and performance requirements of the vehicles and shall have lubrication fittings provided for the universal and slip joints. There shall be suitable protective guards around the drive shaft. Heat shield(s) shall be provided if necessary. No wiring or tubing shall be within striking distance of driveline unless protected by adequate shielding.

2.6.8 SUSPENSION SYSTEM

All vehicles shall have air suspension with electronic self-levelling control, automatically and "instantaneously" adjusting to any load imbalances that may occur whilst maintaining a constant ground clearance.

The basic suspension system shall last the life of the vehicle without major overhaul or replacement. All friction parts shall be equipped with replaceable bushings and inserts. Items such as bushings and air springs shall be easily and quickly replaceable. Wearing surfaces that require lubrication shall have individual lubrication fittings.

2.6.9 STEERING

Vehicles shall be right-hand drive, and all vehicles shall be fitted with electric (electronic) or hydraulic power steering.

**George Integrated Public Transport Network
Annexure A - Specifications**

In the event of hydraulic power steering, a fluid reservoir that is easily accessible for checking and filling fluid level without removing any equipment shall be provided. The reservoir shall be permanently labelled and accessible with engine access door open.

Steering columns shall be adjustable to accommodate driver needs, but only while the vehicle is at a standstill and the engine is shut down.

2.6.10 BRAKES

All buses are to have brake systems appropriate for mountainous terrain and gravel roads.

Vehicles are to have pneumatic anti-lock brake systems designed to ensure safe braking under normal and emergency conditions and appropriate for the operating environment. The braking system shall be balanced such that braking effort is appropriately distributed between all wheels to ensure maximum tyre kilometres and equal rate of wear in front and rear brake blocks. The braking system shall meet all current national and local safety standards.

It is envisaged that all vehicles will be fitted with suitable retarders to accommodate the downhill operation on the worst grades in the network. Hydraulic, water based preferred, or electro-magnetic retarders will be used. (Exhaust retarders are not permissible.) Retarders are to be quiet in operation. The retarder shall not control the maximum road speed nor engage when maximum speed is reached.

2.6.11 TYRES AND WHEELS

All buses will be fitted with tyres specified by the tyre manufacturer as appropriate for the vehicle and vehicle duty. Urban buses shall be fitted with sidewall protection. All buses used in the contract will be fitted with properly matched tyre sets at all times.

a. Tyres

The vehicle's tyres shall have the following characteristics:

- The cross-section width of the tyres must be such that they permit safe operating speeds of up to 100 km/hr for the given axle loads. The tyres must have a speed rating for no less than 120 km/hr. (Rating L.)
- Tyres shall be suitable for the above operation in the Eden District weather and temperature environment, with road surface temperatures of up to 70°C.
- The supplied tyres shall be readily available in South Africa.
- The correct operating tyre pressure for the relevant axle is to be indicated on a plate mounted in a visible position within the wheel arches.
- The tyres shall have a radial ply construction.
- The load on any tyre when the vehicle is at its permissible GVM shall not exceed the tyre Operator's rating.
- Tyres shall be interchangeable between axles on the vehicle.
- The tyres shall not be retreads and shall be NRCS registered and bear the CKS marking.
- Tyres shall not be more than one year old at date of delivery of the bus.

b. Wheel characteristics

The vehicle's wheels shall have the following characteristics:

- All wheels on the vehicle should be of the same size and type and interchangeable between axles. The wheel rims shall be powder coated a colour determined by the Contracting Authority during the pre-production period.
- Vehicles shall be delivered with the full complement of wheels, including one spare wheel, with tyre. (In the event of a waiver on the interchangeability of wheels, additional spares will be required accordingly.)
- Wheels shall be fitted with wheel nut indicators and, if necessary, stud protectors.

**George Integrated Public Transport Network
Annexure A - Specifications**

c. Splash guards / splash aprons

Any vehicle splash guards / aprons shall have the following characteristics:

- Splash guards / aprons, shall be made of composition or rubberized material
- The design of the splash guards / aprons shall preclude the accumulation of dirt.

2.7 ELECTRICAL

2.7.1 INTERNAL LIGHTING

a. Passenger area

Fluorescent lighting shall be installed in the cover area on both sides and along the total length of the vehicle and shall not encroach on the minimum interior headroom.

The lenses shall be made of a tough polycarbonate material and be sealed to prevent the entrance of dust and insects but shall be easily opened for cleaning and servicing.

b. Driver's compartment

A driver's compartment lamp, with a full-range dimmer, shall be mounted to illuminate the entire driver's area.

c. Interior door lighting

All door threshold areas shall be adequately illuminated with LED type lights activated only when the door is open. The lights shall be shielded to prevent light from directly shining into passenger or driver's eyes.

Light fixtures shall be totally enclosed, splash proof, designed to provide ease of cleaning as well as lamp and housing removal and shall not be easily removable by passengers.

2.7.2 EXTERIOR LIGHTING

a. Headlamps

The headlamps shall utilise modern technology. Halogen, HID or LED lamps will be acceptable although LED technology will be preferred if available. Headlamp design should minimise glare experienced by oncoming drivers.

b. Exterior door lighting

An exterior white LED light shall be provided at each door to adequately illuminate the outside area when the doors open.

c. Running, indicator, reversing and marker lights, and reflectors

The buses shall be fitted with day time running lights that are on when the engine is running. These and the indicator, reversing and marker lights, and reflectors shall have the following characteristics:

- LED lights are preferred where possible.
- Direction indicator lights shall be visible from front, rear and sides of the vehicle, with additional side units fitted if necessary. The indicator lights shall double as hazard lights, the control for which will override the indicator controls. Hazard and indicator functions shall result in a low volume audible signal in the driver compartment, but with different tones.
- The vehicle shall be fitted with reversing lights, which shall also engage an audible reversing signal, clearly audible in the vicinity of the vehicle with the engine running.
- Marker lights shall be installed, one on each upper corner of the body. All lenses shall have smooth outside surface to prevent collection of dirt and/or other accumulation.

**George Integrated Public Transport Network
Annexure A - Specifications**

- Reflectors at the front, rear and on the each side of the vehicle shall be provided. Reflectors shall be installed on both sides of the vehicle.
- The vehicles shall be supplied with all compulsory reflectors, including reflective tape, as required in South African law.

2.7.3 BATTERY AND BATTERY COMPARTMENT

a. Battery

The battery and starter cables shall be properly bracketed, sized and fastened to carry the maximum loads that may be encountered.

b. Master battery switch

A master battery switch shall be provided near the batteries in the battery compartment, mounted to prevent corrosion, for complete disconnection of the electrical system.

The master switch shall be capable of carrying and interrupting the total circuit load.

The master battery switch shall be accessible during an emergency through an access door located in the battery compartment door. No tools shall be required to access the switch.

c. Battery compartment

The battery compartment shall be vented and protected to prevent corrosive gases from causing damage and dirt build-up within the compartment.

The batteries shall be removable to allow for safe and easy maintenance of the batteries during service.

No special equipment shall be required to service batteries, e.g., check fluid levels. A positive lock shall retain the battery trays in their normal position.

The battery tray shall be of sturdy construction of corrosion resistant stainless steel.

2.7.4 WIRING AND CABLING

The wiring and cabling on the vehicle shall be colour-coded for ease of repair and maintenance as well as safety. The Operator shall obtain and retain at his operating depot, at least four copies of a fully detailed wiring diagram, or manual, for each type of vehicle with the delivery of the first such vehicle. These diagrams shall be made available to the Contracting Authority's third party suppliers on request.

2.7.5 POWER SUPPLY

Vehicle shall incorporate a clean 24VDC power supply point for third party Electronic equipment installation. This supply shall incorporate a separate 24VDC 120 Ah, or larger, deep cycle battery (or battery bank) that is isolated from the starter batteries of the bus, and charged from the vehicle alternator. (Charging of the starter battery shall take precedence, with approximately 10 minutes of charging time allocated to the starter battery only after each vehicle start.)

The clean power supply shall be capable of supplying **500 Watts** on a continuous basis while the vehicle's engine is running. The system shall further, be able to supply 24 Ah without degradation of the supply voltage while the vehicle engine is not running. This supply shall operate within a tolerance of $\pm 3\%$ of nominal voltage, and transients shall be clamped at no more than 1V above nominal voltage (26V max). The supply shall have an independent battery isolator and not be linked to the vehicle ignition.

All connections shall be clearly marked as to function. The preferred arrangement will be positive and ground power rails in a clearly marked housing, linked to the cable trunking.

**George Integrated Public Transport Network
Annexure A - Specifications**

2.7.6 THIRD PARTY EQUIPMENT CABLING

To facilitate wiring of third party equipment on the vehicle and avoid interference with the vehicles main wiring systems, a readily accessible, but “concealed” cable trunking it to be fitted around the perimeter of the passenger cabin at high level, with links into both the power supply point and the third party equipment housings. This trunking should not be obvious to passengers, preferably hidden behind advertising and map displays above the windows. This trunking may be shared with the original vehicle wiring, but this should be clearly identified and preferably segregated in some way. At all passenger doors, the trunking is to facilitate connections at the bottom as well as at the top of the doors.

2.8 SIGNAGE AND COMMUNICATION

2.8.1 DUTY NUMBER BOARD

A removable duty number board shall be displayed at the lower left of the windscreen so as to be visible from in front of the bus. The letter size shall be 150mm and be made from reflective material. The colour of the numbers must contrast with the background colour of the duty board to facilitate legibility.

2.8.2 VARIABLE MESSAGING DISPLAYS

Buses will be fitted with one external and one internal variable message display. The signs shall utilise high brightness, wide viewing angle, amber Light Emitting Diode (LED) technology. The LEDs shall have a minimum projected service life of 80 000 hours in their installed configuration. The system shall be designed for continuous operation without the need to manually “reboot” computers or devices. Visible messages shall begin playing within one (1) second of being triggered.

Messages on the signs shall be legible during any time of day and from any passenger position on the bus or from a bus stop as appropriate. LED brightness shall be controlled by photocells installed as part of the sign.

The signs shall be capable of displaying not less than 18 upper or lower case characters with proportional fonts. Characters shall be between three (3) and five (5) dot-width, with an average (mode) of four (4) dot-widths. The sign shall be capable of displaying double stroke width (bold) fonts. The front face of the sign shall be designed to minimize glare.

The signs shall have the functionality to display messages in the following modes:

- A single, non-scrolling or changing message
- A right to left scrolling message
- An alternating (between two states) message.

Each sign shall be provided with its own integrated controller accessible to the driver who must be able to select the Route information from a pre-loaded dataset..

Operators must provide details of the proposed displays. The Contracting Authority reserves the right to request changes from that offered prior to Supply Contract finalisation. The approved display specification will be itemised in the Supply Contract.

2.8.2.1 External variable messaging display

An electronic destination board stating the destination of each trip must be mounted centrally at the top front of the bus. The external variable messaging display will alternately indicate two items of information:

- 1.) Route destination;
- 2.) Name of route.

Characters shall be approximately 200 mm high.

**George Integrated Public Transport Network
Annexure A - Specifications**

2.8.2.2 Internal variable messaging display

The internal variable messaging display will alternately provide the following information:

- 3.) Route name;
- 4.) Route destination;
- 5.) Will continuously display the time.

Characters shall be approximately 85 mm high.

The time display shall be outside of the message display area, and may be provided either through additional dot-width on the display or through a separate display module integrated into the sign housing.

The background shall be black, and the sign housing shall include a black border.

2.8.3 AUDIO SYSTEM

The Operator shall install a sound system with microphone and auxiliary inputs and an output that will be clearly heard, without distortion or excessive volume levels, at all points in a full bus at its noisiest operating condition. Not less than one speaker per 3 m of passenger cabin length is to be provided. The input shall default to the auxiliary input, requiring active pressure on a microphone switch to engage the microphone. The Microphone switch will be such as to prevent accidental switching when in its housing in the driver compartment but should be readily accessible to the driver at all times. It is suggested that the microphone be on a flexible mounting near the drivers head and that the microphone control switch be integral to the steering column controls or steering wheel. The volume of the announcements shall be adjustable. The use of the Auxiliary input shall be at the discretion of the Contracting Authority.

2.8.4 STOP-REQUEST SYSTEM

Vehicles shall be equipped with stop-request buttons on the stanchions along the aisle way of the vehicle. One stop-call button for every 3m of length of the passenger compartment, mounted on alternate sides at a level not exceeding 1700mm above the floor level. Notwithstanding the 3m spacing, there shall be one call button on the handrail stanchion at each exit. The call stop buttons are to activate a buzzer and overhead light mounted on the ceiling at the front of the passenger compartment. At least one such button shall be accessible to wheelchair passengers in the designated wheelchair bay(s) where such is provided on a vehicle

2.8.5 DRIVER PANIC ALARM

Emergency situations may arise in which the driver must be able to send a distress message to the control centre. The panic alarm will be utilised in circumstances in which the driver is not able to utilise the normal communications system.

The panic alarm button shall be located discretely in the driver's compartment. The location should be such that it is known to the driver but not clearly evident to passengers. A foot activated control may be most appropriate.

The Operator shall provide the button and the wiring required to connect it to the Vehicle Tracking Unit provided by others.

2.8.6 DESCRIPTION OF COMPONENTS TO BE FITTED AND INSTALLED

The following components listed below will be procured by the Contracting Authority through a separate appointment.

The Operator shall NOT price these items in the pricing schedule but shall allow for their fitment by making the vehicles available at either the vehicle Supplier's plant or in George unless by mutual agreement between the bus and electronic equipment suppliers:

- Automatic Vehicle Location (AVL)

**George Integrated Public Transport Network
Annexure A - Specifications**

- Communications unit (GPRS, Wireless LAN modem, antennas)
- Fare Validator Unit (FVU)
- Fare Cash Box (FCB)

During the pre-production and production period, the Contracting Authority shall communicate with the vehicle Operator in order to ensure compatibility between these components and the installation process.

2.9 MAINTENANCE AND TRAINING

2.9.1 DOCUMENTATION

The Operator will acquire and present for inspection to the Contracting Authority:

- On delivery of each vehicle, all the vehicle's documentation, licences, homologation certificate and so on.
- On delivery of the first vehicle any manuals that would normally accompany a new vehicle, including the "Owner's Manual" if there is one and three complete sets of workshop manuals for the vehicles, covering all aspects, including the body, engine, drive train, electrical system, air-conditioning if fitted, and so on. Such manuals must include parts lists, wiring diagrams, and so on, essentially all information required to maintain the vehicles for the remainder of their anticipated 12 year contract period.
- Thirty months after delivery of the first vehicle, a further 4 sets of manuals, updated to reflect any changes that may have occurred during the maintenance period.

2.9.2 TOOLS, SOFTWARE, AND DIAGNOSTIC EQUIPMENT

The Operator shall ensure that he obtains all the tools and other equipment required to maintain the supplied vehicles to the standards required for the specified 12-year or 1 million kilometre vehicle life prior to taking responsibility for vehicle maintenance.

Special equipment required for daily maintenance, such as the changing of light globes, windscreen wiper blades and so on shall be acquired on delivery of the first vehicle. All the remaining equipment is to be acquired approximately three(3) months prior to the termination of the maintenance contract on the oldest of the supplied vehicles.

The Contracting Authority will not consider the non-availability of maintenance equipment as grounds for waiving any penalties.

2.9.2.1 Comprehensive Fleet Maintenance

The Operator is to enter into a maintenance agreement with the bus supplier(s) for a period of not less than three years so as to ensure that the vehicles are comprehensively maintained, in George, pending the qualification of Operator staff by the supplier(s) to undertake this work.

2.9.2.2 Maintenance Management

The Operator is required to enter into a maintenance management agreement with the bus supplier(s) for the duration of the warranty period so as to ensure maintenance is carried out in a timeous and appropriate manner pending the qualification of Operator staff by the supplier(s) to undertake this work.

2.9.2.3 Maintenance Training Programme

The operator is to ensure that the bus supplier(s) make provision for the training of Operator staff in the maintenance of the fleet and that an apprenticeship programme is put in place to accommodate at least 10 apprentices continuously for a minimum of three years with a view to qualifying artisans certified to carry out warranty maintenance on the supplied vehicles.

**George Integrated Public Transport Network
Annexure A - Specifications**

2.9.2.4 Vehicle Specific Driver Trainer Training

The Operator is to ensure that the bus supplier(s) provide adequate vehicle specific driver training, in George, so as to ensure safe and efficient use of the vehicles. The Operator will be required to present vehicle specific Certificates of Competency along with other driver certificates when introducing a new driver onto the system.

2.10 DISABLED-PASSENGER VEHICLES

Two, (2) vehicles suitable for the transportation of passengers requiring wheelchair transport are to be provided. These will meet the engine and drive train specifications set out above and will be fitted with a wheelchair ramp or lift and harness by an SABS approved Operator of such vehicles. The vehicles shall be able to accommodate five (5) wheelchair passengers plus a further eight (8) seated passengers.

2.11 VEHICLE BRANDING AND LIVERY

All buses operated on the contract will conform to the standard livery for the service. Elements of the livery will be applied as decals rather than paint. These are to be of high quality, with a minimum useful life of four years under the environmental conditions. During the pre-production stage, the Contracting Authority will determine the extent to which decals are to be used in the vehicle livery. For the purpose of pricing, the Operator is to assume that the vehicle will have a three (3) colour, full body livery using non-metallic paints and that there will be one full colour logo decal on each side and end of the vehicle. The decals may be assumed to have dimensions of approximately 1/3rd of the relevant vehicle dimension; i.e. height/3 and length/3.

The details of the livery will be provided by the Contracting Authority and such details will be annexed to this agreement as Annexure F. The Operator will produce samples for approval, which shall be given in writing, prior to finalising livery on the fleet. No non-liveried vehicles will be permitted to provide local services within the contract area except that, in exceptional circumstances, the Contracting Authority may grant a once-off ninety (90 day written waiver for individual vehicles. These vehicles will be required to bear the removable branding decal noted below.

During Phase 1, vehicle identification may be of the removable vinyl decal type on plain white vehicles. Upon commencement of Phase 2, all newly introduced vehicles will be presented in full livery as specified. Vehicles already on the fleet, will be upgraded to full livery within ninety days of the commencement of Phase 2.

2.11.1.1 Removal of Livery

At the end of the Operator's contract with the Contracting Authority or when any vehicle is withdrawn from the George Municipal service, all contract livery is to be removed from the vehicle before the vehicle may be used for any other service. This will require the removal of all decals and may require the repainting of parts of the vehicle. Failure to comply with such requirement will infringe copyright law and appropriate legal action will be taken against the Contractor.

2.12 VEHICLE MONITORING

2.12.1 VEHICLE PERFORMANCE MONITORING

The vehicle will be equipped to monitor and record the most pertinent performance statistics of the major mechanical and electrical components. The performance monitoring system will provide information for, at least, the following, all against time and date in a manner that allows correlation of the various data elements:

- Vehicle Speed and acceleration (Tachograph type information)
- Engine Revolutions per Minute (tachometer reading)
- Engine running hours, total and since last start.
- Vehicle mileage
- Gear selection

**George Integrated Public Transport Network
Annexure A - Specifications**

- Fuel used and fuel levels
- Engine coolant temperature
- Ambient inside and outside air temperatures
- Status of doors
- Brake pressures
- Parking brake status
- Alternator load
- Direction indicators activation

The rate of data acquisition shall be such as to allow for engine or transmission failure or accident analysis. In this respect, it is expected that, for example, speed and acceleration will be monitored with high frequency, gears on gear change, and fuel used and levels at a relatively low frequency. Output from the system shall be accessible to the Operator who shall make such information available to the Contracting Authority on request.

3 STAFF MATTERS

The public transport system drivers play a vital transportation and safety promotion role within the area they serve. Drivers should develop the knowledge and skills necessary to guarantee their continued contribution to this contract. Each bus driver should be aware, equipped, and capable, to eliminate risk to passengers while being transported. Drivers are expected to conduct themselves in a professional manner at all times while on duty and/or in uniform.

A driver on the George public transport system should be prepared to undergo the following checks:

- Background checks
- Moving Violation record check
- George Traffic Department record check
- Criminal Background check
- License and Permit requirements

The following will be of benefit:

- Experience in assisting physically challenged and/or wheelchair passengers
- Knowledge of CPR & First Aid
- Pre-Employment Drug Test
- Interpersonal / Customer skills
- Language skills
- Reporting skills
- Writing proficiency

The Contracting Authority may require that drivers:

- Undergo In-Service Evaluation
- Attend Monthly Safety Meetings with the Operator
- Accommodate Ride-Along Evaluations by any Monitor, without prior notice
- Undergo Medical Physicals (renewal every 2 years) at the Contracting Authority's request

At the discretion of Contracting Authority and at the Operator's expense, new drivers and those involved in accidents may be required to present themselves with the vehicle they are to operate and undergo a driving test established by the George Traffic Department.

No Operator staff member shall smoke, consume alcohol or illicit drugs while on duty in public and never in a Public Transport Vehicle.

All operational staff shall conduct themselves in a quiet and professional manner at all times while on duty or in uniform.

**George Integrated Public Transport Network
Annexure A - Specifications**

3.1 GENERAL STAFF REQUIREMENTS

The Operator will be expected to provide a staff complement able to provide the services to be rendered in terms of this contract. This shall include bus drivers, inspectors, monitors, client liaison personnel and any other administrative and management staff as may be required to ensure the successful operation of the Operator's business. The Operator will be expected to conduct business in full compliance with all labour and legislation that might be applicable. As part of its annual, monthly report to the Contracting Authority, the Operator shall include details of the number of employees, their roles and the minimum, average and maximum wage paid for each staff category. The Operator shall also make a copy of the company employment policy available to the Contracting Authority on request.

3.2 EDUCATION AND TRAINING

1. General Issues

It is a condition of this contract that the Operator will enable the participation of employees in the Provincial Education and Training Programme established in conjunction with this contract. These courses will be funded through a combination of skills development levy funding, claimed by the Operator, with targeted supplementary funding from the Contracting Authority. The Operator will be required to provide proof of payment of skills development levies, to demonstrate that the opportunities for education and training are equitably distributed amongst all staff and furthermore that not less than 1% of annual gross income is spent on education and training of staff.

2. Driver Training

Notwithstanding the above, every driver of a public transport vehicle in terms of this contract shall be required to undergo an approved advanced driving course for public transport vehicles prior to commencement of duty and thereafter at least once every two years. Proof of such training shall be maintained at the Operator's office for inspection by the GIPTN Manager.

3. Customer Liaison Training

All operator staff will be expected to attend an approved public transport customer liaison course prior to commencement of duties in the contract and refresher courses not less than once every three years. (Random and recorded interactions will be undertaken by Contracting Authority appointees to ensure that quality customer relations are maintained.)

As part of its annual report to the Contracting Authority, the Operator shall include details of the number and ranks of all staff that have participated in education and training programmes along with details of the programmes themselves.

4. Certificates of Competency

As noted in Annexure D of this contract, penalties will be imposed where staff lacking the relevant Certificate of Competency are deployed where such a certificate is required. In particular:

- Bus driver's must be in possession of a Certificate of Competency issue by the vehicle Supplier or the Supplier's approved agent, indicating that the driver has successfully completed vehicle specific driver training for the vehicle being operated. (This excludes standard minibuses, where the normal driver requirements will however remain in place.)
- Bus driver's and conductors operating vehicles designated especially for the carriage of persons with disabilities must be in possession of a Certificate of Competency from a service provider approved by the Contracting Authority, stating that the individual has successfully completed a course relating to the provision of services to disabled individuals. (All vehicles will be open to people with disabilities, but the general requirements will be covered in the Customer Liaison training.)

**George Integrated Public Transport Network
Annexure A - Specifications**

3.3 STAFF UNIFORMS

All drivers, conductors and other Operator field staff are required to wear the liveried uniform while on duty and only then. Details of the required uniform are set out in Annexure F:

The Operator shall be responsible for the provision and replacement, as necessary of such uniforms and shall ensure that the uniforms of operational staff are clean and in good repair and condition at all times.

4 SERVICES

4.1 REQUIRED SERVICES

Detail of the main services to be provided are given in Annexure B: Routes and Timetables. The following additional information should be noted.

4.2 INFRASTRUCTURE

4.2.1 DEPOTS AND BUS PARKING

The Contracting Authority will make a depot available within the George Municipal area that includes offices, workshops and parking, for the entire bus fleet. The use of this depot by the Operator shall be in terms of the Contracting Authority's "Depot Service Level Agreement" included as Annexure E: of this contract. Buses operated in terms of this contract may not be held other than at the depot or other authorised sites, as may be amended from time to time. The bus Supplier's authorised workshop is automatically deemed to be an authorised site.

Access to the Depot Site will be provided within one working day of signature of this contract. Full access and control of the site will be handed over at some time after that subject to mutual agreement between the Operator and Contracting Authority regarding safety and security of the vehicles and staff at the depot, but in any event, not later than 1 July 2012. Upon hand-over, site security will become the sole responsibility of the Operator.

4.2.2 OTHER INFRASTRUCTURE

In the event that additional bus holding areas and staff facilities (remote from the terminals and main depot) are deemed necessary by the Contracting Authority, separate agreements between the Contracting Authority and the Operator will be entered into in respect of the responsibilities for such sites.

4.3 ROUTES, SCHEDULING AND TIMETABLES

The routes, scheduling and timetables are subject to a public consultation process and Contracting Authority-Operator negotiations. It is also anticipated that the provision of appropriate public transport services will lead to a rapid increase in both passenger demand and route requirements, necessitating regular review of routes and timetables. For the purpose of establishing the contract, the route details are provided in Annexure B: Routes and Timetables of this contract document. These routes and timetables present the best estimate of the Contracting Authority as to the needs at the commencement of the contract and also indicate the levels of service expected to be maintained throughout the contract.

Annexure B: Routes and Timetables also provides details of the operating periods, number of vehicles of each capacity required and the anticipated passenger demands for each route, where data permits.

5 RECORD KEEPING, DATA SUBMISSION AND REPORTING

5.1 ANNUAL REPORT TO CONTRACTING AUTHORITY

The Operator shall, on an annual basis, submit to the Contracting Authority, a full annual report for the period since the last annual report, including but not limited to:

**George Integrated Public Transport Network
Annexure A - Specifications**

- An audited financial statement
- A detailed statement of fleet resources
- A detailed statement of staff resources
- A detailed statement of revenue kilometres operated, by vehicle class
- A detailed statement of passengers carried by route, shown as total for the period and averages for a typical weekday, typical Saturday and a typical Sunday.

5.2 TRIP INFORMATION

Trip information for all approved trips must be provided on a monthly basis. This is to include the average number of kilometres per month for each type of vehicle. Liaison with the GIPTN Manager must take place during the establishment period on the procedures to be followed.

5.3 USE OF ELECTRONIC DATA TRANSFER

The daily trip information must be provided in both electronic and paper-based format, the report showing all passenger statistics, revenue kilometres and penalty trips for the entire month in question. This report, duly signed by the Operator, together with the completed electronically based daily trip data, must be submitted to the GIPTN Manager not later than seven (7) days after the end of the month. The report, which should be in agreement with the electronic submission and the external monitoring system noted in Section 5.7 below, will constitute the kilometre claim, which the GIPTN Manager will use for checking the monthly claim form.

5.4 DUTY NUMBERS

Not less than one week prior to the commencement date of any new service, the Operator shall submit a complete list of proposed driver duties (the driver duties are generic, not the names of actual drivers,) for Monday to Friday, Saturdays and Sundays. The duty shall have a number and list the starting and end destination names for each trip, together with the appropriate route number and times.

5.5 PASSENGER PERCEPTIONS OF THE SERVICE

Passenger liaison and information dissemination will be managed in terms of a separate contract. The Operator will however, be expected to participate in this process and attend monthly or more frequent meetings in this regard. All complaints received will be forward to the Operator for a written response within 72 hours. Such response shall include a report on the incident with, where required by the Contracting Authority, a program for the prevention of similar incidents.

Where the Operator receives complaints direct from the public, it is expected of the Operator to report these, in writing, within 48 hours, providing the complainants details, the date and time of the event leading to the complaint and receipt of the complaint itself, the nature of the complaint and the immediate actions taken to address it. The follow up report must be received not more than 24 hours later. In order to determine the passenger perception of the service, the Contracting Authority can appoint any party deemed fit to conduct the passenger survey or census, with which the operator will be expected to cooperate.

5.6 CONTRACT MONITORING

This contract includes allowance for performance penalties. In order to manage these and thus ensure that service quality is maintained, as well as to facilitate the payment of Operator accounts, the Contracting Authority will appoint independent monitors. Monitors will check that services provided are in line with the contract that has been signed between the Operator and the Contracting Authority. They are expected to confirm, on a daily basis, trips that have been operated, passenger numbers on buses and the quality of service.

The GIPTN Manager will have weekly meetings with the monitors and Operator to discuss any penalties that are to be levied and to address problems.

George Integrated Public Transport Network Annexure A - Specifications

It is recommended that the Operator appoint its own internal monitors to pre-empt potential problems. Physical and electronic monitoring systems through electronic ticketing equipment will be applied. The Contracting Authority will appoint different monitoring firms for this purpose.

Contract Monitoring and Management comprises three components that will provide most of the information necessary to ensure the fulfilment of the contract to specification.

Component 1:

The Operator shall maintain a detailed schedule that provides the following information that shall be available for inspection on request of the GIPTN Manager:

- Route name
- Trip departure time (From designated terminus point) for every scheduled trip
- Vehicle Number
- Vehicle driver name and staff number
- Conductor (if present) name and staff number
- Route Supervisor name and staff number
- Scheduled services not operated, with reason

Component 2:

The Operator shall be required to maintain detailed logbooks for all vehicles, indicating at least:

- Driver name and time of duty
- Routes operated, with times of commencement and termination. The Route name will be used for scheduled services and the destination, with any intermediate stops, shall be given for ad hoc services
- The number of cycles on each route
- Daily Kilometres including both scheduled and auxiliary service kilometres
- Fuel intake
- Daily cleanliness inspection certifications
- Problems experienced with vehicle
- Weekly and Kilometre based maintenance certifications
- Annual roadworthiness certifications

Component 3:

The Contracting Authority shall appoint staff whose duties shall include:

- Random inspections of passenger travel passes or tickets, on or off the vehicles
- Weekly inspection of the vehicles – See Appendix 1 for an example inspection sheet
- Weekly inspection of the terminus infrastructure
- Monitoring of the maintenance records of the vehicles
- Monitoring of the operational records of the Operator in respect of the contract
- Monitoring of the actual use of the system via in-vehicle and boarding and alighting counts
- Handling complaints (complaints will be passed up the chain of management as necessary)

The GIPTN Manager shall oversee all monitoring and shall:

- Handle all requests for non-scheduled transport using the PTS
- Oversee the suitable allocation of specific vehicle types to particular tasks (i.e. ensure that the Operator is making the most effective use of vehicles from a customer service perspective.)
- Assist the Operator with routing and scheduling problems when necessary
- Report any concerns to senior management at the earliest possible time.

**George Integrated Public Transport Network
Annexure A - Specifications**

5.7 VEHICLE MONITORING

With the objective of ensuring that service are provided as specified, all buses will be fitted with on-board Global Positioning System Tracking devices, at the Contracting Authority's expense. This system will provide real-time position and speed data for all vehicles, allowing the tracking of route, timetable and traffic regulation adherence. The Operator may elect, at its own expense, to obtain a monitor station that mirrors the data and may use this to fulfill the requirements of Section 5.3 above subject to noting that this system will not release the Operator from his obligation to provide full data, even in the event of failure of the monitoring system.

It is to be noted that the tracking devices are also appropriate for insurance purposes and as an aid in the event of breakdowns, accidents and other problems. It is expected that the equipment fitted to larger vehicles will also monitor certain engine and driver behavior functions that will be of interest to the Operator.

6 FINANCIAL MATTERS

6.1 FARECOLLECTION

This is a Gross Contract and the Operator is thus remunerated on the basis of services rendered, not passengers carried. The Operator will have no role in the setting of fares.

To allow for passengers not able to acquire tickets off-vehicle, vehicles will be equipped with ticket selling equipment, which may be fixed or portable depending on the needs of the system. Fares so collected will be paid over to the Contracting Authority's agent within one (1) Business Day of collection. The deposit notice shall be submitted to the GIPTN Manager along with the ticket stubs or electronic ticket sale records as may be appropriate.

Any contravention of this rule will constitute a serious breach of Contract for which penalties will be applied as set out in Annexure D: Penalties.

6.2 CONTRACT PRICING STRUCTURE

Contract pricing shall be such that all overhead and fixed costs will be covered as part of the basic contract irrespective of kilometres covered. Variable cost rates shall be applied in compensation for contract kilometres operated in accordance with the rate for the vehicle used. Additional rates will be applied where auxiliary services require standing time for drivers. All payment will be made in terms of monthly invoices to the Contracting Authority for services rendered in terms of the schedule of prices in Annexure C, Form 13.

6.2.1 OVERHEAD COST COMPONENT

This cost component is intended to cover those costs that are independent of the fleet composition and size, within reason, or of the kilometres operated by the fleet. The overhead costs will be escalated in terms of the prescribed escalation method.

6.2.2 FIXED COST COMPONENT

The fixed cost component of the contract is intended to cover those costs specifically related to the provision of vehicles for the contract. The fixed cost may include a contribution to overheads where these are seen to be affected by the fleet size or composition. The fixed costs escalated in terms of the prescribed escalation method.

6.2.3 VARIABLE COST COMPONENT

The variable cost component will be linked to the number of scheduled kilometres operated with the specified vehicle class for each route in the system and the rate will be associated with the vehicle class and escalated in terms of the prescribed escalation method.

**George Integrated Public Transport Network
Annexure A - Specifications**

6.3 PENALTIES

It is the objective of the Contracting Authority to create an environment in which public transport is considered a desirable and preferred mode of transport. To this end, the quality of service is to be maintained at the highest conceivable level. To aid this, a system of Penalties will be applied. These are set out in detail in Annexure D.

Failure to adhere to the terms of the contract will attract penalties and the penalty associated with the failure will be deducted from the monthly contract invoice. It is to be noted that certain infringements of the Contract may result in termination of the contract or banning of certain staff members from participation in the relevant aspect of the contract.

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**George Integrated Public Transport Network
Annexure A - Specifications**

APPENDIX 1 : EXAMPLE VEHICLE INSPECTION SCHEDULE

The following table reflects the general form of the weekly vehicle inspection. The Contracting Authority reserves the right to amend this schedule at its own discretion. The driver presenting the vehicle shall be required to sign the inspection form and failure to do so shall be deemed full acceptance of any penalties imposed by the inspector. The driver may provide comment on any item. Copies of the completed inspection forms will be made available to the Operator on a daily basis so that warning items may be dealt with. Minor defects will be allowed to hold over until the following week's inspection whilst others will require that the vehicle be withdrawn from service and presented for inspection prior to being permitted to operate again.

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George Integrated Public Transport Network: Annexure A - Specifications

Vehicle Registration:		Inspection date:	
Inspector:		Last Inspection date:	
	Observation	Warning	Penalty
Inspection:	Was the vehicle presented on time?		
Cleanliness:	Is the vehicle clean inside and out?		
General condition:	Are any seats torn, is there broken or cracked glass etc?		
Tyres:	Are the tyres in good condition?		
Lights:	Are all lights, including indicators, exterior and interior, working?		
Exhaust:	Noise and colour. (Emissions)		
Windscreen wipers:	Working?		
Fire extinguisher:	Is the vehicle's fire extinguisher in place and its service up to date?		
Emergency Signs	Are the Emergency Triangles on the vehicle?		
Identification	Is the Route indicator functional and is all livery correct?		
Log book:	Is the logbook up to date?		
Drivers licence:	Does the driver have his/her licence?		
PrDP:	Does the driver have his/her PrDP?		
CoF:	Is the vehicle's CoF present and in order?		
OL:	Is the vehicle's Operating Licence present and in order?		
Driver uniform:	Is the driver in uniform?		
Inspector comments:			
Signature of Inspector			
Driver comments:			
Print Name		Signature	
Driver:			